



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/769,115	01/30/2004	Young Hoon Kwark	YOR920030625US1 (163-27)	7189
24336	7590	08/24/2005	EXAMINER	
KEUSEY, TUTUNJIAN & BITETTO, P.C. 14 VANDERVENTER AVENUE, SUITE 128 PORT WASHINGTON, NY 11050			CHAN, EMILY Y	
			ART UNIT	PAPER NUMBER
			2829	

DATE MAILED: 08/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/769,115

Applicant(s)

KWARK, YOUNG HOON

Examiner

Emily Y. Chan

Art Unit

2829

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 June 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 20-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/30/24 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Applicant's election with traverse of claims 1-19 in the reply filed on 6/24/05 is acknowledged. The traversal is on the ground(s) that claims 1-19 (Group 1) and claims 20-28 (Group 11) relate to a system for measuring circuit characteristics and a method for performing the measurements. Method claim 20 includes a providing step that essentially provides the system, as recited in claim 1. It is respectfully submitted that serious burden would not be placed on the Examiner to search the common subject and examine both Group I and Group 11 claims together, obviating the need for restriction. This is not found persuasive because the apparatus claims 1-19 are directed to a system for measuring circuits on an integrated circuit with a power transfer device which comprises an inductor coil, a photo sensor, a photodiode, a laser and a capacitor which are not recited in the method claims 20-28. Whereas the claims 20-28 are directed to a method for contactless measurement of a circuit characteristic comprising a switching mask plates to alter the characteristic value and a database for storing the measurements which are not recited in the apparatus claims 1-19. Therefore, the apparatus claims 1-19 and method claims 20-28 are different inventions. The search required for the apparatus claims 1-19 is not required for the method claims 20-28 and the search required for the method claims 20-28 is not required for the apparatus claims 1-19. The requirement is still deemed proper and is therefore made FINAL.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2829

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2, 8-10 and 16-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Kantz et al US Patent No. 2001/0043078.

With respect to claim 1, Kantz et al ('078) disclose a system for measuring circuits on an integrated circuit substrate(see Figs.1-5) as claimed, comprising:

a measurement circuit ( Built-in self-test (BIST) 2) formed on the integrated circuit substrate which measures at least one characteristic (functionality of the normal memory cell) of an integrated circuit ( chip 1),

the measurement circuit ( 2) comprising a power transfer device including a power transfer component ( voltage detector or current detector 6), which receives energy from a source (energy source 30) where the source (30) does not make physical contact with the integrated circuit substrate (1) to transfer power to the measurement circuit (2) (see page 4, paragraph (0045) "a solar cell 30, which can generate the operating current 1B on the semiconductor chip 1 by optical radiation 31 is fed in contactlessly").

With respect to claim 2, Kantz et al ('078) disclose (see Fig. 4) that the integrated circuit substrate includes a chip (1) formed on a semiconductor wafer (10).

With respect to claim 10, Kantz et al ('078) disclose a system (see Figs. 1-5) for measuring circuits on an integrated circuit substrate, comprising:

a semiconductor wafer (10) including a plurality of chips (1);

a measurement circuit (2) formed on at least one of the chips, the measurement circuit measures at least one characteristic (functionality of the normal memory cell) of an integrated circuit,

the measurement circuit (2) including a power transfer component which receives energy from a source (energy source 30) where the source does not make physical contact with the semiconductor wafer (10) to transfer power to the measurement circuit (2) (see page 4, paragraph (045) "a solar cell 30, which can generate the operating current 1B on the semiconductor chip 1 by optical radiation 31 is fed in contactlessly"); and

a test device (3) including the source (30), which delivers energy to the power transfer component (6) of the measurement circuit.

With respect to claims 8 and 16, Kantz et al ('078) disclose that the measuring circuit (2) includes a control circuit (6), which conveys measurement information (see page 4, paragraph (0041), last three lines "for the purpose of initiating a function test of account of a detected characteristic voltage sequence or current sequence").

With respect to claims 9 and 19, Kantz et al ('078) disclose that at least one characteristic includes circuit response (see page 4, paragraph (0039), last five lines).

With respect to claims 17 and 18, Kantz et al ('078) disclose that the test device includes a thin film dielectric membrane (see Fig. 5A, 12) having the source (30) mounted thereon and includes a probe ring (a support for the thin film dielectric membrane (12))(see page 4, paragraph (0048)).

Therefore, Kantz et al ('078) anticipate the claimed invention.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 3 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kantz et al ('078) in view of Fischer et al US Patent No. 6,787,801.

Kantz et al ('078) do not disclose that the measurement circuit (2) is formed in a kerf area of the chip (1).

Fischer et al ('801) disclose a system for measuring circuits on an integrated circuit substrate comprising a measurement circuit (3) and exclusively teach that the measurement circuit (3) is formed in a kerf area (4) of the chip (1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to incorporate the feature of having measurement circuit formed in the kerf area of the chip as taught by Fischer et al ('801) into Kantz et al ('078)'s system so that Kantz et al ('078)'s measurement circuit (2) would be formed in the kerf area of the chip (1) for the expected benefit of providing an improved wafer design for testing integrated circuits on the wafer as disclosed by Fischer et al ('801) (see Col. 2, lines 45-46).

4. Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kantz et al ('078) in view of Cheng et al US Patent No. 6,906,495.

Kantz et al ('078) do not disclose that the power transfer device (6) includes an inductor coil and the source (30) transfers energy via inductive coupling.

Cheng et al ('495) disclose a system for transferring power and exclusively teach that a power transfer device includes an inductor coil (see Figs 6a-6f) and a source (power supply 760) transfers energy via inductive coupling (see Fig. 5 and Col. 16, lines 37-54).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to incorporate the teaching of transferring energy via inductive coupling as taught by Cheng et al ('495) into Kantz et al ('078) 's system for the expected benefit of providing a system for transferring power without requiring direct electrical conductive contacts as disclosed by Cheng et al ('495) (see Col. 4, lines 31-33).

5. Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kantz et al ('078) in view of Hirt US Patent No. 6,686,760.

Kantz et al ('078) do not disclose that the power transfer device (6) includes a photo sensor and the source (30) transfers energy via light.

Hirt ('760) discloses a photosensor for testing an integrated circuit (see Fig. 2) and exclusively teach that a power transfer device includes photo sensor (see Fig. 2) and the source (see Fig. 9, 306) transfers energy via light (see Col. 5, lines 46-47).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to incorporate the teaching of transferring energy via light as taught by Hirt ('760) into Kantz et al ('078) 's system for the expected benefit

of providing a system for contactless testing which allows for fast and reliable testing as disclosed by Hirt ('760) (see Col. 2, lines 4-5).

6. Claims 6 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kantz et al ('078) in view of Hirt ('760) as applied to claims 1, 5, 10 and 13 above, and further in view of Cook et al US Publication No. 2002/0047722.

Kantz et al ('078) in view of Hirt ('760) do not disclose that the photo sensor includes a photodiode and that the source includes a laser.

Cook et al ('722) disclose a contact-less probe of semiconductor wafers (see Figs 1 and 5) and exclusively teach a power transfer component includes photodiode (10) and a source (14) includes a laser (see page 3, paragraph (0046), line 6 " optical power source, such as a laser").

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to incorporate the teaching of photodiode and laser as taught by Cook et al ('722) into Kantz et al ('078) 's system for the expected benefit of providing a testing devices which do not contact the device under test (DUT) as disclosed by Cook et al ('722) (see page 1, paragraph (0002)).

7. Claims 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kantz et al ('078) in view of Cook et al US Publication No. 2002/0047722.

Kantz et al ('078) do not disclose that the power transfer device includes a capacitor and the source transfers energy via capacitor coupling.

Cook et al ('722) disclose a contact-less probe of semiconductor wafers (see Figs 1 and 5) and exclusively teach a power transfer component includes capacitor (see



Fig. 5, 54) and the source transfers energy via capacitor coupling (see page 3, paragraph (0045)).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the claimed invention was made to incorporate the teaching of photodiode and laser as taught by Cook et al ('722) into Kantz et al ('078) 's system for the expected benefit of providing a testing devices which do not contact the device under test (DUT) as disclosed by Cook et al ('722) (see page 1, paragraph (0002)).

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Moore US Publication No. 2003/0146771 discloses an apparatus for the wireless or contactless testing of integrated circuits and wafers.

White et al US Patent No. 6,331,782 disclose an apparatus (see Figs 1-9) for wireless or contactless testing of integrated circuits.

Jenniling et al US Patent No. 4,697,183 disclose a means for non-contacting signal and energy transmission.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily Y. Chan whose telephone number is 571-272-1956. The examiner can normally be reached on 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 571-272-2034. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2829

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EC  
8-15-05

*Julie M. Hight*  
Jermele Hollington  
Primary Examiner  
AU 2829  
08/19/05